Citizens' Bulletin

Volume 8 Number 5 January 1981 $3/yr.
The Connecticut Department of Environmental Protection

Citizens' Bulletin

January 1981

Volume 8 Number 5 $3/yr.

Cover Photo: Pine siskin: Leonard Lee Rue III

Contents

DEP Citizens' Bulletin
(USPS 041-570)

Published eleven times a year by the Department of Environmental Protection. Yearly subscription $3.00; two years, $5.00. 2nd class postage paid at Hartford, Connecticut. Funds are also provided through a federal grant from the Office of Coastal Zone Management under the Coastal Zone Management Act of 1972. Please forward any address change immediately.

DEP personnel director 'Woman of the Year'

DEP's director of personnel, Carol S. Hewey, was recognized as YWCA Woman of the Year in Government Service at an awards luncheon at the Hartford Hilton on October 22. Hewey is shown, photo center, receiving the YWCA's award symbol from Patricia Scully Belair, President of the Hartford Region YWCA. Nan Robinson, Deputy Commissioner of the Board of Higher Education, recipient of the Woman of the Year award in Education is at left.

The six 1980 Hartford Region YWCA Women of the Year were selected from 39 nominees in the fields of Government Service, Education, Humanitarian and Community Service, Health, Communications, and Business and the Professions.

Hewey began her career with the State 13 years ago as a University helper at the University of Connecticut's Wilbur Cross Library. She subsequently held positions as clerk-typist, senior clerk, and Business Services Officer I at the Department of Mental Retardation's John Dempsey Regional Center. During the same period Hewey attended the University of Connecticut. She completed a degree in sociology/psychology at Godard College in 1976.

She joined the DEP four years ago, moving from Personnel Assistant to Personnel Officer I and Personnel Officer II positions. She became Director of Personnel in November 1979. As director, she is responsible for personnel activities for DEP's 750 full-time and 1,000 seasonal employees. She has served as the agency's affirmative action liaison and has developed and implemented in-house and statewide training programs..

She is vice president and a charter member of Connecticut State Women in Management and a member of the Connecticut Chapter of the International Personnel Management Association. She is also a charter member and a counselor for the "Women in Crisis" program which assists women whose men have been sentenced to prison for the first time.

She is a member and secretary to the Bolton Board of Education and has been active in a variety of programs of the Bolton Congregational Church. She has also worked with the Cub Scouts and is a "Foster Parent" to children in the Philippines and Columbia. She's a member of the Greater Hartford Folk Music Society and the National Wildlife Association.

"The Connecticut Department of Environmental Protection is an equal opportunity agency that provides services, facilities and employment opportunities without regard to race, color, religion, age, sex, physical handicap, national origin, ancestry, marital status or political beliefs."

Noise control... the sounds of everything but silence

FOR RENT: Two-bedroom apartment. New building. Heat, hot water, appliances, disposal. Air-conditioner. Pool. Convenient to highway, airport, shopping, schools. Children, pets okay.

Sound ideal? Worth taking a look at. Wise, in the process, to also take a listen. It may be perfect, but as described our apartment offers plenty of potential for noise.

Convenient to highway may mean, when the wind is right, the still of the night will give way to the roar of the semis. Within ten miles of an airport, on a flight path, may equal noisy. Does "new" mean construction is still going on in the area? More noise. Will traffic generated by the shopping center or the school mean noise?

Inside, too, there may be noise makers. A shrieking disposal unit. The air-conditioner that roars. Heat that comes up, with dawn, like thunder. The dog next door. The kiddies shouting around the pool, against the background growl of pumps and filters.

And all this is not to mention any discreetly hidden railroad line, the rock band that materializes for rehearsals upstairs, or the drop forge around the corner.

In short, would-be home buyers or renters ought to check out the neighborhood and listen carefully before they leap. Don't despair, however, if you're already settled into noisy circumstances. The EPA publication, "Quieting in the Home," which lists over 125 different common home noise complaints, offers 115 pages of practical, if fairly technical, information on quieting things down and shutting out unwanted sounds. (See our illustration for some suggestions.)

Let's have a little quiet here

So what are we doing about the problem of noise? Depending on your vantage point, a good bit or not nearly enough. In a number of ways our noise situation falls into the good news/bad news category. One piece of bad news is that there's a lot of noise around, and sources are proliferating. But, on the bright side, a lot of noise can be fairly readily and relatively inexpensively avoided, prevented, or reduced.

Again, only a small fraction of the country's federal funding for pollution abatement -- about one percent -- goes into anti-noise efforts. But a whole long list of organizations is now involved in an equally long list of major and minor noise control efforts.

Where does Connecticut stand in its efforts? "Not many states are as far along," says Joseph Pulaski, Director of DEP's Noise Control Unit. "Just a handful -- Illinois, California, Florida, New Jersey, Michigan, Oregon, and Connecticut -- have statewide noise regulations."

Connecticut passed its State legislation (Public Act 74-328) and established the Noise Control Unit in 1974. The unit researched available noise control literature, reviewed noise regulations of other states, and together with a Noise Advisory Committee prepared a set of draft noise control regulations tailored to the State of Connecticut. Final regulations were approved in 1978.

The Unit presently consists of Pulaski; Jack Wilcox who coordinates a community noise abatement assistance program called ECHO (Each Community Helping Others); and secretary Peg Viola. Until recently

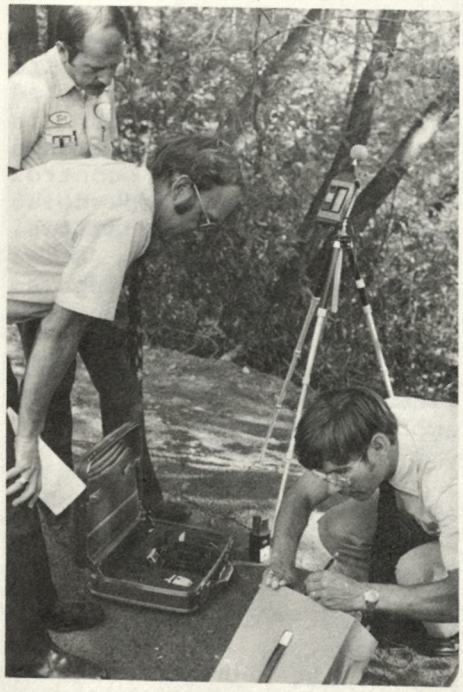
it also included Eric Thompson, who worked with the unit under the Environmental Protection Agency's State Assignee Program.

Though it's small, the unit is extending its efforts in several ways. One thrust of national noise legislation under the Noise Control Act of 1972 and its successor legislation, the Quiet Communities Act of 1978, as well as of Connecticut's State program has been toward solving as many noise problems as possible at the local level.

To this end, the Noise Unit has been offering seminars on noise problems and practical noise monitoring techniques for local officials -- members of local health departments, environmental agencies, police departments, fire departments, and related organizations. The unit is also helping nine towns develop appropriate and realistic local noise ordinances. (Towns may draft their own regulations, which can be more stringent than the State's. Towns can't, however, enforce the State stationary source noise regulations.)

Professor Conrad Hemond of the University of Hartford's College of Engineering, director of the New England Regional Noise Technical Assistance Center, instructs community official in use of sound meter.

David Derynoski and Bill Charamut, rear, of New England Aircraft Products, watch as DEP Noise Control Unit Director Joseph Pulaski makes notes on chart recorder. Noise Unit offers suggestions for solving noise problems even when, as in this case, noise levels fell within the regulations' limits.



The ECHO program also augments the State unit's efforts by locating and making available to other communities individuals qualified in community noise control. Three "Community Noise Advisors," Robert Sanborn, Health Director in Bloomfield, Laura Morrison, Laboratory Director for the Greenwich Public Health Department, and Charles Petrillo, Jr., Windsor's Environmental Health Officer, are reimbursed for travel expenses they incur assisting other communities under this program, but are not paid any salary for this work. Like the State staff, they offer technical assistance in community attitude surveys and in the drafting of community noise ordinances and zoning and building codes, and training in noise measurement and enforcement.

Most towns need only a microphone and a sound level meter, plus a calibrator, for their noise monitoring and enforcement -- an investment of between $300 and $800. "The $39.95 meter probably won't meet standards," Pulaski says. "We usually allow a two decibel tolerance with the precision equipment. The inexpensive equipment is much less accurate."

Meters are also available on loan to towns from the DEP's Noise Control Unit, the University of Hartford's Regional Noise Technical Assistance Center, and the State Motor Vehicle Department. For the more complicated problems -- impulse noises like drop forges or rifle ranges or discrete tones -- Pulaski recommends requesting help from the Noise Control Unit.

So what is actually going on now, you're asking. You haven't noticed a hush dropping over Connecticut. How, and how well, are noise control efforts working?

How is a bullfrog like a Boeing 747?

Based on actual use, under Connecticut's stationary source noise regulations, tracts of land in the State are classified as residential (class A), commercial (B), or industrial (C), and are assigned maximum daytime and nighttime property line noise levels, regulating both what noise they emit and what they should receive. The rules are, however, subject to a list of exemptions and exclusions and allowances ranging from animal noises and farming activities to aircraft engine testing. Among noise makers excluded or exempted are amphibious creatures and aircraft flight operations, storms, riots and catastrophes, construction noise, patriotic celebrations no more than a day long, and lawn care equipment if the latter is operated between 7 a.m. and 9 p.m. with adequate mufflers.

The regulations are, according to Pulaski, "a good start. They provide some numbers that remove some of the subjectivity about what's noisy." (See the Noise Zone Standards table.) He adds, "There are a lot of exemptions, but the existence of an exemption doesn't mean we don't get involved, though it means we can't take legal action. We can still get involved as advisors."

Things that go bump in the night...

Though noise is objectively measurable, the subjective factors are substantial. Some annoyance, Pulaski notes, is mainly psychological, and some problems have been solved to the complainant's satisfaction by visual barriers.

By their three classifications and their 10 decibel nighttime "penalty," Connecticut's stationary source noise regulations take into consideration some of these subjective factors, putting emphasis on nighttime noise in residential zones since, as most people at least occasionally notice, noise can be twice as bothersome at night.

Noise levels and tolerances also vary from community to community -- as, according to ECHO coordinator Jack Wilcox, they

Noise is not just a nuisance

In 1976, the Department of Commerce's "Annual Housing Survey" found noise ranked first among undesirable neighborhood conditions. A Gallup Poll found that, after water pollution, noise was mentioned as a serious pollution problem more often than any other.

Pollution problem? you say. Isn't noise just another nuisance?

In fact, noise can be dangerous to a lot more than your disposition. Industrial surveys report hearing loss as the largest compensable occupational health problem today.

It's pretty well agreed that progressive damage to hearing begins to occur with protracted exposures to noise levels of 70 to 80 decibels, levels frequently reached in heavy traffic, using power tools, or using household appliances. It's estimated that 20 million or more Americans are exposed daily to such damaging levels.

While there's no doubt that high noise levels contribute to hearing loss, researchers are now questioning the degree to which lower levels of noise contribute to the gradual hearing loss we've tended to associate with aging. In isolated areas in Africa, researchers found men in their 70s and 80s whose hearing was nearly equal to that of young boys and just as good as that of Americans 30 to 40 years their juniors.

Recent studies also associate noise with a number of other health effects. These include elevated blood pressure, which contributes to heart disease and stroke, and other stress symptoms such as ulcers, fatigue, and anxiety. Workers in some of the noisiest industries show higher incidences of circulatory problems than those in quiet industries. Noisy work areas have been correlated with digestive changes and increased respiratory problems in workers. In Japan, researchers found more low birth weight babies were born in noisy areas.

Industrial studies have also found higher levels of conflict in noisy working areas. An English study found admissions to mental hospitals higher among those living adjacent to London's Heathrow Airport than among those living in quieter areas.

Noise has been implicated, too, in occupational accidents -- as a contributor where high noise levels masked warning signals. Finally, the undesirable effects of noise even extend to the social and psychological complications often suffered by those who develop hearing losses. ■

probably should. For this reason, too, the Noise Control Unit encourages local communities to develop their own community noise regulations for greater appropriateness as well as most effective enforcement.

At the State level, success rates for resolving noise complaints have been high. Approximately 90 percent of the complaints received are resolved within 60 days. To date, no cases have had to go to civil prosecution; resolutions have been the product of conciliation. According to Pulaski, the desire for good public relations on the parts of corporate or business offenders have made many of these cases easy to

To page 8

When does sound become noise?

From U.S. EPA's pamphlet, "Noise Pollution"

Sound moves through the air somewhat like waves move in the ocean. In sound, the waves are alternate rings of compressed, and then rarefied air moving away from a central source at a constant speed. As each wave -- first a compression, then a rarefaction--encounters an object, it exerts a force — a push, then a pull--on the object. This is why sound can break a glass, or cause a window screen to vibrate.

For humans, sound has two significant characteristics: pitch and loudness. In terms of affecting people, pitch is generally an annoyance--the sound of chalk scraped over a blackboard surface. Pitch is the height or depth of a tone or sound depending on the relative rapidity of the vibrations by which it is produced. In low-pitched sounds, the vibrations are relatively far apart. In high-pitched sounds, they are squeezed closer together.

Loudness, on the other hand, can affect our ability to hear. It is the intensity of the sound waves combined with the reception characteristics of the ear. The intensity of a sound wave may be compared with the height of an ocean wave. In terms of sound's effect, this intensity is how hard a sound wave hits an object, a characteristic which can be measured precisely with instruments. But the loudness heard by a human ear is slightly different from the purely physical values. Our ears hear sound at intermediate frequencies better than sound at very low or very high frequencies.

Sound is measured by decibels. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect.

Decibels are not linear units like miles or pounds. Rather, they are representative points on a sharply rising curve. Thus, while 10 decibels is 10 times more intense than 1 decibel, 20 decibels is 100 times more intense (10 x 10), 30 decibels is 1,000 times more intense (10 x 10 x 10), and so on. One hundred decibels, therefore, is 10 billion times as intense (that is, represents 10 billion times as much acoustic energy) as one decibel. The reason for such a complicated scale is simply that the human ear detects a wide range of acoustic energy.

Sound levels are measured at their source; thus, their decibel rating decreases as the distance from that source increases. These ratings should, therefore, be regarded as averages and should be used primarily for comparative purposes.

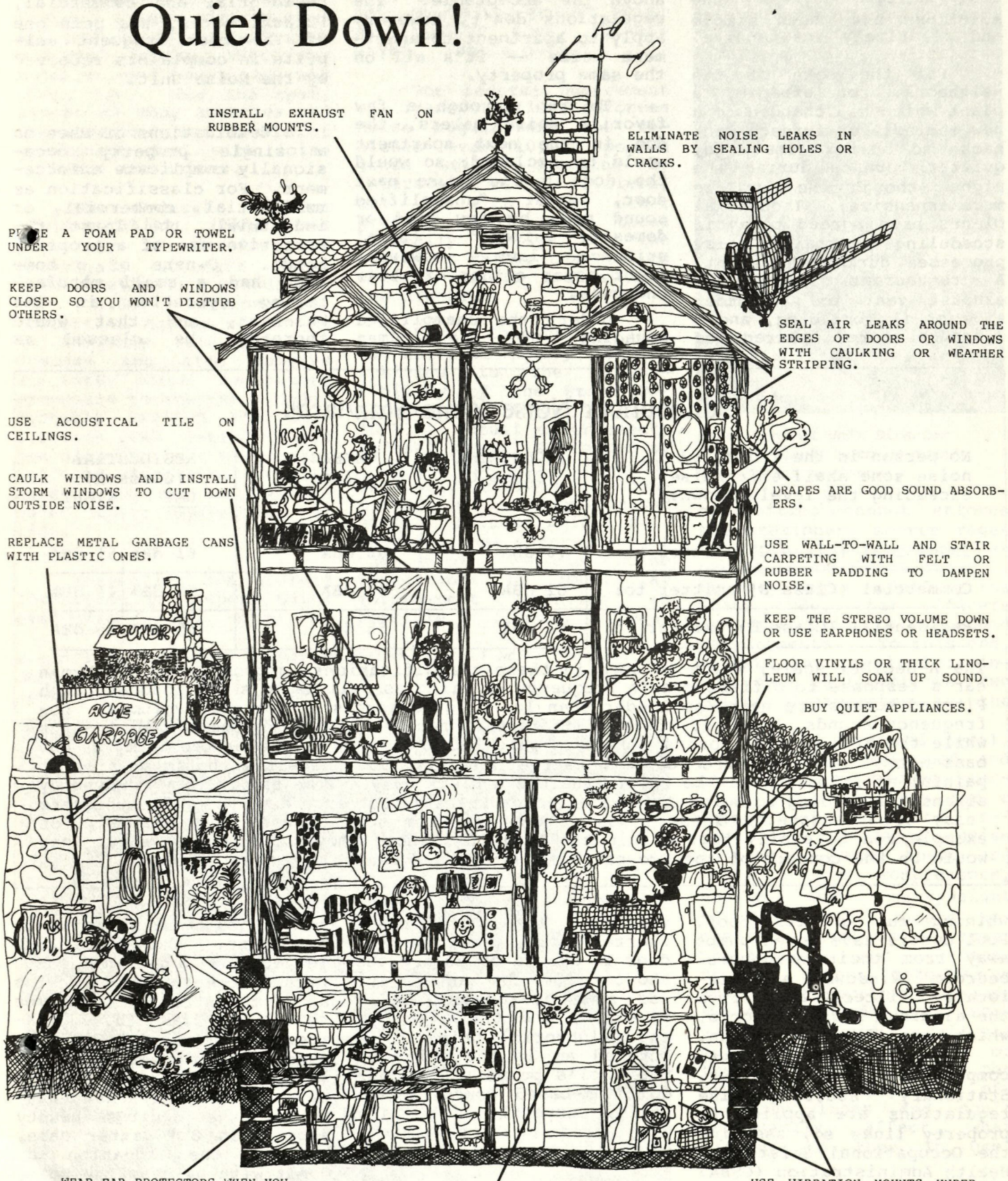
The gentle rustle of leaves, for example, is rated at 10 decibels, while a typical office has about 50 decibels of background noise. Moderate traffic noise ranges around 70 decibels; a police whistle hits 80. Subways and elevated trains rank just below thunder at 100 decibels. At just above 120 decibels the ear begins to feel pain. ■

Sound Levels and Human Response

Common Sounds	Noise Level (dB)	Effect
Carrier deck jet operation Air raid siren	140	Painfully loud
	130	
Jet takeoff (200 feet) Thunderclap Discotheque Auto horn (3 feet)	120	Maximum vocal effort
Pile drivers	110	
Garbage truck	100	
Heavy truck (50 feet) City traffic	90	Very annoying Hearing damage (8 hours)
Alarm clock (2 feet) Hair dryer	80	Annoying
Noisy restaurant Freeway traffic Man's voice (3 feet)	70	Telephone use difficult
Air conditioning unit (20 feet)	60	Intrusive
Light auto traffic (100 feet)	50	Quiet
Living room Bedroom Quiet office	40	
Library Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Hearing begins

This decibel (dB) table compares some common sounds and shows how they rank in potential harm to hearing. Note that 70 decibels is the point at which noise begins to harm hearing. Sounds become intrusive at about 60 decibels. To the ear, each 10 decibel increase seems twice as loud. ■

Quiet Down!



INSTALL EXHAUST FAN ON RUBBER MOUNTS.

ELIMINATE NOISE LEAKS IN WALLS BY SEALING HOLES OR CRACKS.

PLACE A FOAM PAD OR TOWEL UNDER YOUR TYPEWRITER.

KEEP DOORS AND WINDOWS CLOSED SO YOU WON'T DISTURB OTHERS.

SEAL AIR LEAKS AROUND THE EDGES OF DOORS OR WINDOWS WITH CAULKING OR WEATHER STRIPPING.

USE ACOUSTICAL TILE ON CEILINGS.

DRAPES ARE GOOD SOUND ABSORBERS.

CAULK WINDOWS AND INSTALL STORM WINDOWS TO CUT DOWN OUTSIDE NOISE.

REPLACE METAL GARBAGE CANS WITH PLASTIC ONES.

USE WALL-TO-WALL AND STAIR CARPETING WITH FELT OR RUBBER PADDING TO DAMPEN NOISE.

KEEP THE STEREO VOLUME DOWN OR USE EARPHONES OR HEADSETS.

FLOOR VINYLS OR THICK LINOLEUM WILL SOAK UP SOUND.

BUY QUIET APPLIANCES.

WEAR EAR PROTECTORS WHEN YOU ARE USING EQUIPMENT OR TOOLS THAT PRODUCE SUSTAINED LOUD SOUNDS.

PUT FOAM PADS UNDER BLENDERS, MIXERS, AND OTHER SMALL APPLIANCES.

USE VIBRATION MOUNTS UNDER ELECTRICAL APPLIANCES, INCLUDING WASHER, DRYER, AND DISHWATER.

solve. In addition, with advice from the Noise Control Unit, many of the solutions have been simple and relatively inexpensive.

For the sake of its neighbors, for example, a plant which had changed to a new and noisier furnace went back to using its old, quieter furnace during the night (though the fuel is more expensive). Industrial plants have agreed to avoid scheduling certain noisy processes during the night. A restaurant moved its exhaust vent to the other side of its building, and a discount store repaired the whining fan on its roof. Pool owners have moved pumps away from their neighbors' bedroom windows and relocated filters away from the aluminum sides of pools, which amplify the sounds.

Enforcing it all gets complicated at times. Stationary source noise regulations are applied at property lines so, assuming the Occupational Safety and Health Administration (OSHA) doesn't care, you can make as much noise as you want just so it doesn't reach the edge of your neighbors' properties at decibel levels above the acceptable. The regulations don't, however, apply to apartment-to-apartment noise -- it's all on the same property.

To run through a few favorite noise makers, the dog in the next apartment would be excluded; so would the dog in the house next door, under "unamplified sound made by any wild or domestic animal." (Local nuisance laws, however, might cover either of their choruses.)

Under "the unamplified sounding of the human voice," the barbershop quartet on the property next door is excluded, as are the shouts from the pool. But add some electronic amplification, and the group on the neighboring property is covered as is the whine of the pool's pumps. The condominium-based combo, meanwhile, currently sings in a grey area as far as how property lines apply.

The air-conditioner whining on the adjoining property is covered--in the next apartment, it's not. This type of equipment, residential and commercial, Pulaski notes, has been one of the most frequent culprits in complaints received by the Noise Unit.

Combinations of uses on a single property occasionally complicate enforcement. For classification as residential, commercial, or industrial, the least restrictive use of a property holds. Owners of a home that had a small manufacturing operation in its basement, and that would therefore be classed as industrial, submitted one complaint. The Noise Unit tested and found the sound within acceptable levels for an industrial receiver though it was above residential limits. It was the same story with a complaint about a disco from residents of a dwelling that also housed the owner's beauty shop. In the latter case, however, the situation was dealt with as over the noise limits when another complaint came from a strictly residential property nearby.

Connecticut Noise Zone Standards

No person in the indicated noise zone shall emit noise exceeding the levels shown:	INDUSTRIAL (Class C)	COMMERCIAL (Class B)	RESIDENTIAL (Class A) DAY	RESIDENTIAL (Class A) NIGHT
Industrial (Class C) emitter to:	70 dBA	66 dBA	61 dBA	51 dBA
Commercial (Class B) emitter to:	62 dBA	62 dBA	55 dBA	45 dBA
Residential (Class C) emitter to:	62 dBA	55 dBA	55 dBA	45 dBA

The A-decibel scale, which is used in these classifications, approximates the human ear's response to differences in frequency or pitch as well as to sheer loudness. High Pitched sounds are heard as louder than low pitched sounds at the same volumes. Low frequency sounds, however, travel much farther because of their longer wave lengths while the high pitched sounds dissipate quickly. That's why you hear the thump of the bass notes from the stereo down the street clearly, but the siren that's physically painful as it passes may be hardly audible a block away. "The ear is very annoyed by sirens," according to Noise Control Director Pulaski, but such high pitched sounds are "easy to attenuate." These types of sounds, from some industrial processes, for example, can be easily kept within the buildings where they originate -- where they would be the concern of the Occupational Safety and Health Administration.

Flying the noisy skies . . .

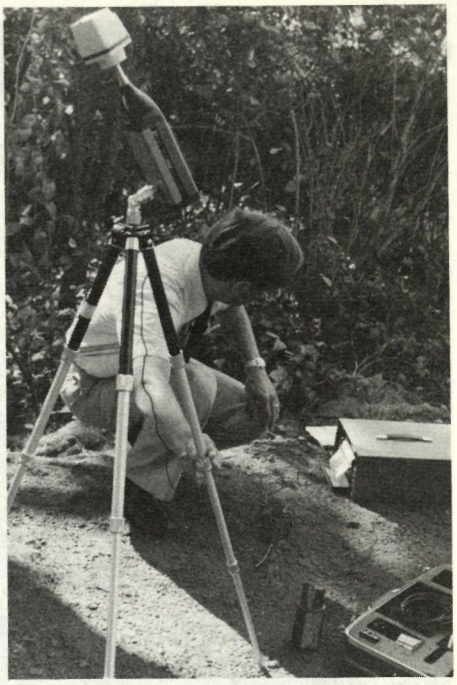
Connecticut's stationary source noise regulations apply to only some of the noises that may assault your ears on any given day. For the rest, almost as many agencies and organizations and levels of government deal with noise as there are noises.

The Federal Aviation Administration (FAA) has authority to develop and promulgate aircraft noise certification standards. The U.S. Environmental Protection Agency serves in an advisory role in this process and also submits aircraft noise regulatory proposals to the FAA. Under recently revised FAA regulations (FAR Part 36), new jet aircraft must be quieter and some older aircraft will have to be retro-fitted to quiet their operations by 1985.

Meanwhile, EPA assists localities in airport noise evaluations and noise abatement efforts. While the FAA's responsibility extends from takeoff to landing, as far as on-the-ground noise at airports goes, Pulaski says: "That's ours."

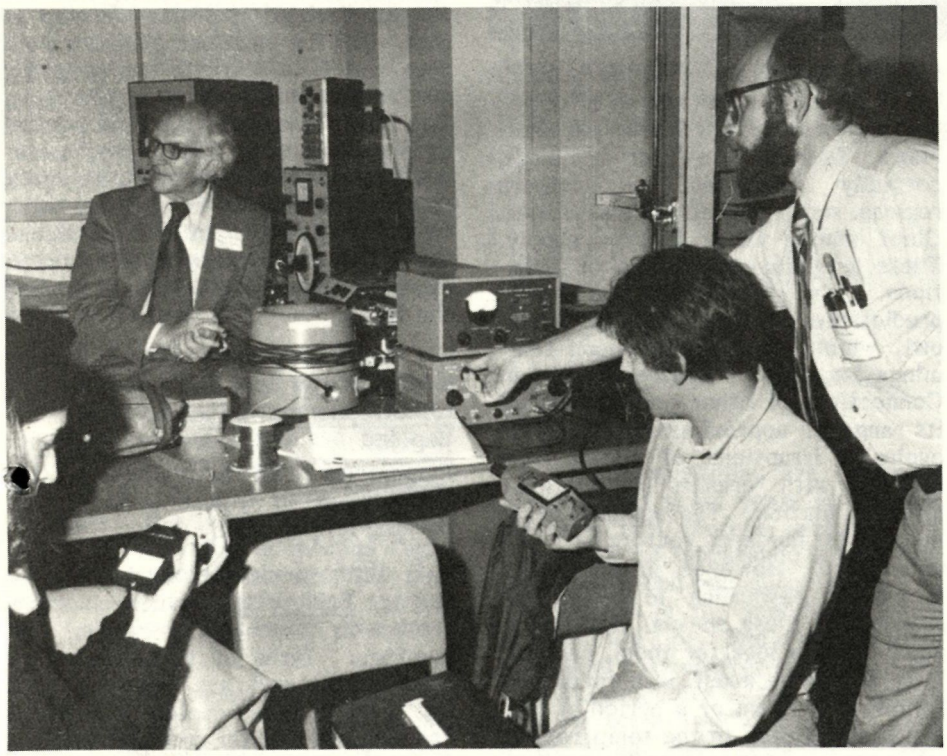
The federal Department of Transportation enforces noise regulations for vehicles over 10,000 pounds gross weight operated by interstate motor carriers, but as with some other product regulations, these basically apply to the equipment rather than to its effects as it speeds down the highway.

Under Connecticut law, the noise of moving licensed vehicles is the responsibility of the State Department of Motor Vehicles (DMV). Actual enforcement, Pulaski says, is limited by lack of funds and the DMV can only respond to complaints on a very limited basis. Pulaski points out, however, that enforcement of the motor vehicle noise regulations by local law enforcement agencies is possible (though local communities cannot enforce the stationary source regulations). But police departments should be careful, if they begin enforcing the State code, that officers are qualified to do sound measurements. To this end, Pulaski has provided training and equipment to two police departments in the State.



Noise Control Unit Director Joseph Pulaski sets up sound measurement equipment.

Craig Stalk, laboratory technician at the Regional Noise Technical Assistance Center, adjusts sound to demonstrate effects on sound level meters. Jack Wilcox, ECHO program director, is at rear.



At the national level, the EPA has developed and issued or is holding hearings on regulations for a number of products recognized as major noise sources. Among these are portable air compressors, medium and heavyweight trucks, wheel loaders and crawler tractors, trash compacters and garbage trucks, buses, motorcycles and motorcycle exhaust systems, mopeds, off road vehicles, and railroad equipment. Again, most of these regulations cover the products as they come off assembly lines and don't necessarily affect what happens to them in use.

Another proposed EPA program calls for noise level tags that will let

To page 22

Nature Notes

by Penni Sharp

Leonard Lee Rue III; Pine siskin

Winter birds make limited appearances

Cold arctic flows of air are the typical weather patterns that herald Connecticut winters. Freezing winds lower temperatures and drive up oil bills. Winter settles in, and the landscape takes on its stark appearance which will persist until the first signs of spring tell us that a change is coming. Winter is the dormant time for much of the plant and animal life of the Northeast.

Although winter brings with it the temporary disappearance of many of our animals, some of the birds that can be seen in Connecticut make their appearances only during winter. May and September are undisputedly the peak months of bird migrations. However, in Connecticut, every month brings with it movement and dispersal of birds. Waterfowl are on the move through December and early January, usually traveling southward in search of ice-free waters. The rigors of winter in lands far to our north can have an effect on the movement of birds into our area. Many factors may drive birds, normally restricted to northern regions, south of their natural ranges. Chief among these is food supply. These irregular migrations, or irruptions, can sometimes be quite predictable. For example, the snowy owl, which is dependent upon lemmings for its food supply, appears in Connecticut or other points south of its range in approximately four-year cycles. Irruptions of snowy owls coincide with "crashes" in the lemming population. The appearance of many other northern visitors is less understood. However, in any winter it can be rewarding to be on the lookout for these unusual visitors. A good time to look for them, particularly along the coast, is immediately following a storm or a period of high winds and a drop in the temperature. Those willing to brave the cold will find winter birding an invigorating experience. Although the number of different birds seen may not be as great, there is always the chance of spotting an unusual species.

Along Connecticut's coastline several species can be looked for. Watch flocks of gulls carefully, looking for the two white-winged gulls that appear occasionally during winter.

The glaucous gull (Larus hyperboreus) is a large gull (26 to [illegible] inches) which is usually found in the company of herring gulls. This large gull can be recognized by its white wing tips which are present with all plumages. First year birds are pale buff to cream colored; second year birds are white throughout; and adults are pearl gray to white. The glaucous gull has pinkish feet and a stout yellowish bill.

During winter, gulls are likely to be seen along beaches or at garbage dumps. They are predatory birds and often take young plovers, alcids, and small ducks. They also scavenge on garbage and dead animal matter.

Closely resembling the glacous gull is another winter visitor, the Iceland gull (Larus glaucoides). The Iceland gull is similar to the glaucous in all plumage phases and also has the pure white wing tips. It is somewhat smaller (23 to 26 inches), but the largest Iceland gull can overlap in size with the smallest glaucous gull. The best field mark to use in trying to distinguish the two is bill size. The bill of the Iceland gull is slender in comparison to the heavy, somewhat longer bill of the glaucous gull. Another distinction is that the wing tips of the Iceland gull extend beyond the tail whereas, on the glaucous gull, they are stubby and do not go beyond the tail.

Also found in coastal regions during winter are the snow bunting (Plectrophenax nivalis) and the Lapland longspur (Calcarius lapponicus). The best place to find these birds in winter is at coastal parking lots or grassy dunes.

Both species belong to the bird family Fringillidae which includes grosbeaks, finches, sparrows, and buntings. Birds of this family are seed eaters and are endowed with short, stout, often conical bills which are well adapted for cracking seeds.

The snow bunting is a regular winter visitor to Connecticut and is the whitest of all songbirds. In winter, both male and female have upper parts of a rusty brown. The males often have blackish streaks down their backs. In flight, the buntings flash white wing patches and from beneath look almost entirely white. "Snowflake" is another name for this bird. It is strictly a ground bird and feeds in open fields on weed seeds. Severe northern winters will drive large flocks of snow buntings as far south as Pennsylvania.

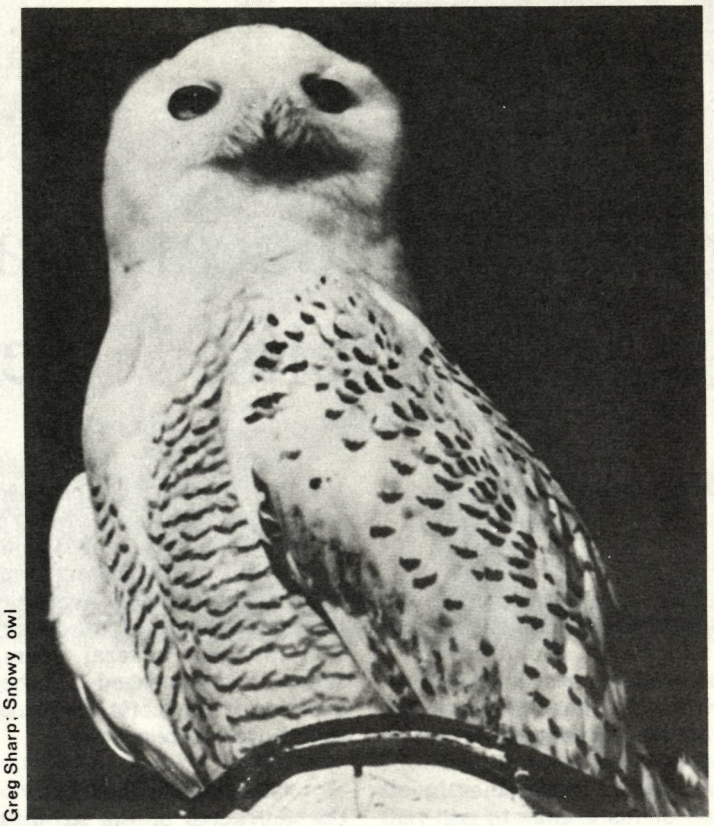
Flocks of snow buntings often associate with flocks of Lapland longspurs. The Lapland is the only longspur to visit Connecticut. The hind toenail on this bird is as long or longer than the toe itself and gives the foot an odd appearance. So effective is the protective coloration of the Lapland longspur that entire flocks can be overlooked and noticed only when they take flight. In winter, both male and female are nondescript blackish-brownish streaked birds. The male has a rusty nape, and a good field mark for both is the mostly black tail with its white outermost tail feathers.

Lapland longspurs are birds of the open country and spend their time in windswept fields feeding on large quantities of weed seeds.

Other members of the family Fringillidae can be found further inland. Pine siskins (Carduelis pinus), common redpolls (Carduelis flammea), and red crossbills, (Loxia curvirostra) are examples of northern birds which are known to visit our area during difficult winters. They seem to be most numerous during years when the northern seed crop has failed. These birds can be looked for in coniferous woods or open fields and are occasionally attracted to feeding stations.

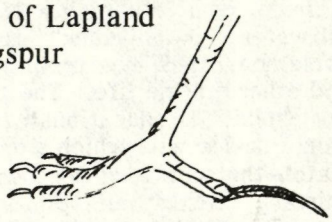
The pine siskin is one of the smallest finches and is dark and heavily streaked with small patches of yellow on the wings and tail. It has a notched tail and fairly slender pointed bill. In many ways, the siskin resembles the American goldfinch, and it has a similar undulating flight pattern. When it's around, the pine siskin comes readily to bird feeders and is particularly fond of thistle seed.

Another small finch is the common redpoll. As its name implies, this bird sports a bright red patch on its forehead. The male has a pink breast, and both male and female are brown-streaked and have black chins. The redpoll is a bird of open thickets and weedy pastures. Redpolls spend much of their time on the ground actively feeding on the dried seeds of last summer's flowers. They tend to be somewhat tame and easily approached, a habit which can make them an easy target for house cats and other predators.



Greg Sharp: Snowy owl

Foot of Lapland Longspur



Red crossbills are sporadic visitors, and many years may elapse between the winters during which they make an appearance in Connecticut. The distinguishing feature on these birds is the mandibles which cross at the tips. The crossbill feeds exclusively on conifer seeds, and the crossed mandibles enable the bird to pry the seed from the cone. They often reveal their presence through the noise produced as they open the cones of evergreen trees.

Red Crossbill

The male is dull brick red in color with blackish wings and tail, while the female is a drab olive-gray with a yellowish hue on the rump and underparts. Clumps of coniferous trees provide the most likely spots for the red crossbill to be seen.

A number of other northern visitors often make their way down to Connecticut during winter, among them owls, waterfowl, and several songbirds. If your winter seems too housebound, brave the cold and try some winter bird walks. Dress warmly, and make a trip to the coast or some similar place which will provide opportunities for successful sightings. Local bird-clubs usually have the latest information regarding winter birds in the area. Many also sponsor organized walks. A final note--remember to keep those feeders full!

At Thames Science Center, emphasis is educational--courses, exhibits, "Science Saturdays"

By Jenny Mead, Massachusetts Audubon Intern

> Man depends on and takes pleasure in his environment. He shares a common evolutionary origin with all other species and is qualitatively like them in most fundamental aspects of his makeup and existence. But he is unique among the species in the scope of his ability to control — hence harmonize with or degrade —his environment. The Thames Science Center is dedicated to playing a constructive role in the relationship between man and his environment.

The above is an excerpt from the statement of philosophy of the Thames Science Center, an independent, non-profit education organization located in the Connecticut College Arboretum in New London. In operation for 38 years, the center is currently undergoing a transition from a local nature center to an "organization that identifies local needs for science and environmental education and acts on these needs," according to John Cook who has been the center's director for three years.

The change in focus was the result of a long range plan completed last year, and the nature of this transition is reflected in the center's programs. A variety of courses designed for different ages run throughout the year. Adults can study topics such as marine biology, geology, and landscaping, while elementary and high school students are offered courses in subjects ranging from astronomy to animal communication. The emphasis of the center's educational program is on elementary school age children, with programs both in the local school systems and at the center, programs which Cook estimates involve an average of seven to eight thousand students a year. For the past several years, a preschool has operated at the center, utilizing its exhibits and trails as well as Arboretum resources.

The center has full access to the 460 acres of the Arboretum, and the surroundings are particularly suitable for environmental activities and programs. The center's quarter mile trail takes the hiker through a variety of natural communities, including a red maple swamp, a white pine plantation, and an upland oak forest. There is also a salt marsh on the nearby Thames River, a pond, bogs, old fields and orchards, as well as a burn study area for research on the effects of forest fires.

An emphasis on "learning by doing" is obvious in the center's building which currently houses a small museum, complete with a 250 gallon saltwater "touch tank" containing horseshoe crabs, sea urchins, clams, and other marine life. The thrust of the exhibits is educational: an electronic device with which a person can match the names of various marine animals with their pictures, for example, or an indoor/outdoor working beehive. There are also a variety of animals, including native turtles, salamanders, an African boa constrictor named "Noah," and a European ferret. In general, however, the center's staff is reluctant to take in animals, believing that "things should be left to take care of themselves," according to Loraine Utter, the center curator and naturalist. Badly wounded animals are either put to sleep or sent to a nearby nature center which does take care of wounded animals.

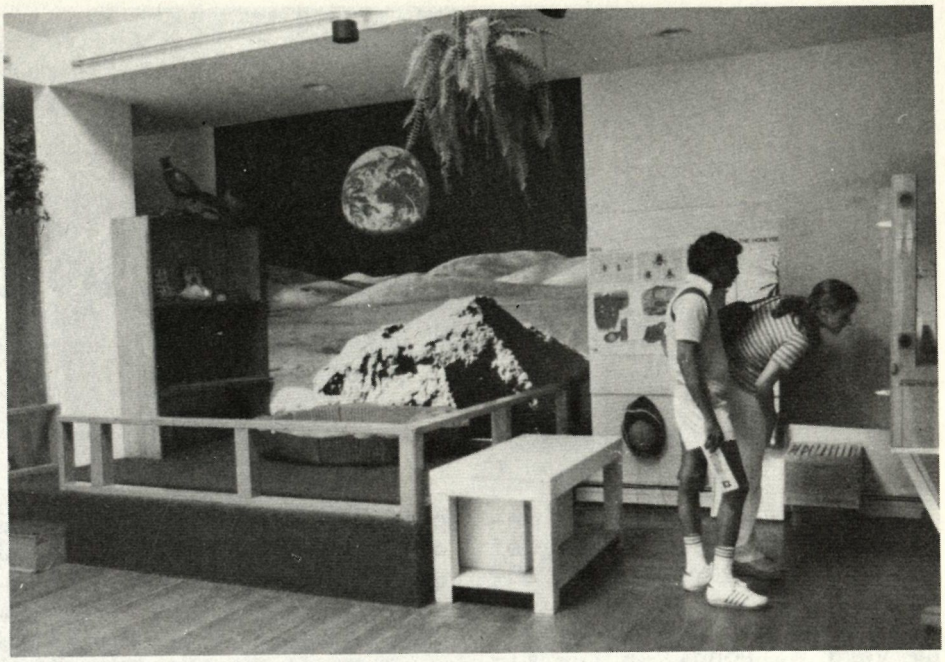
Courses and programs are taught by three full-time staff members as well as individuals from outside the center. "If a qualified teacher wants to teach a course and we can fit him in, we'll do that," says Utter. In addition to the regular courses, the center offers programs such as Cape Cod bicycle trips, bird and flower walks, canoe trips, and star gazing parties complete with telescope and the expertise of local astronomers. Each month, the Center adopts a theme around which exhibits, lectures, and workshops are organized. Examples of themes adopted thus far are insects and ticks, weather, astronomy, atomic phenomona, and endangered species. "Science Saturday," featured monthly, is a day devoted to topics such as electricity, wood-working, and maple-sugaring. A recent Saturday "health day" featured a visiting doctor, nurse, and skeleton. These special days are very successful, says Utter, attracting an average of 100 people for the day.

The center also offers a variety of naturalist tours throughout the northeastern United States and Canada. Recently, Cook led a nine day adult trip to see the nesting colonies of sea birds on Bonaventure Island in the Gulf of St. Lawrence. Along the way, the group stopped to visit several islands off the coast of Maine to see birds such as puffins and bald eagles.

Another Science Center weekend trip brought participants to Great Gull Island, six miles off the Connecticut coast in Long Island Sound. Here they took part in an ongoing study, by American Museum

of Natural History ornithologists, of the 4,000 common and roseate terns which live there. During the weekend they helped with banding, checking for parasites, observing from blinds, and counting eggs.

The center also hosts various traveling exhibits, such as a recent National Aeronautics and Space Administration collection of Viking photographs of Mars and Jupiter and Landsat pictures of the United States. In September, a Smithsonian collection of moon photographs graced the center's exhibit area walls. A diorama of the local Pattagansett salt marshes and the marshes' productive biological systems, an exhibit prepared by Raymond de Lucia of the American Museum of Natural History and funded by local contributors, opened in November.

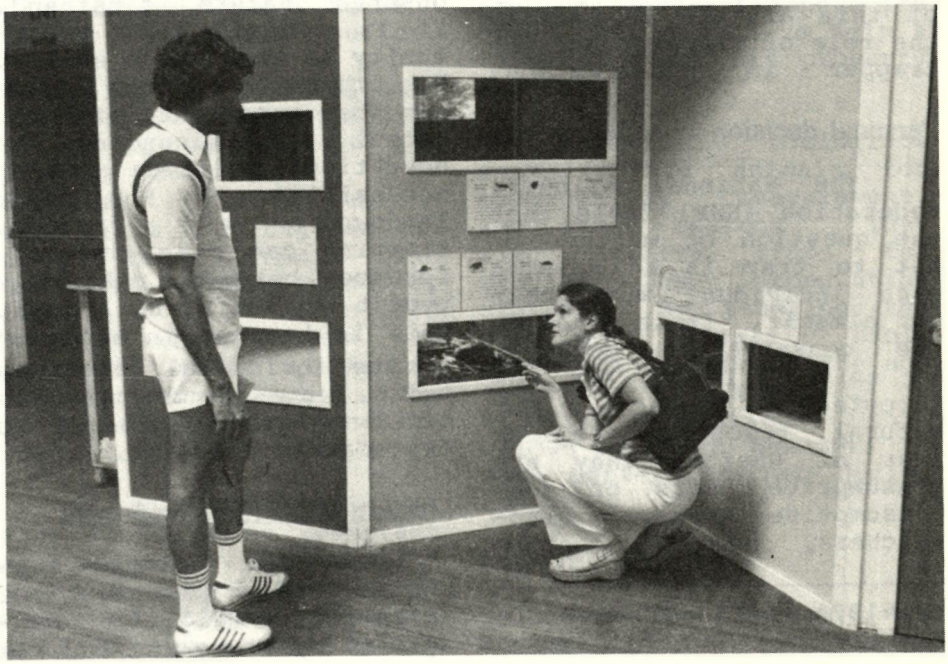


The variety of educational programs have been enhanced by the addition of a new classroom/laboratory which will enable the center to offer more science courses. Recently completed, this facility now holds the Center's computer and solar hot water systems. Center staff plan to use the classroom/laboratory to host programs planned for adults and high school students. Most of the funding for these projects comes from local foundation grants as well as private contributions.

Many of the center's programs are geared to educating people by involving them directly in research. Currently, a Connecticut College botanist and a zoologist are conducting salt marsh estuarine research in the Pattagansett Marsh, and the center has involved itself in the project by getting people out to participate in the study and "to observe real scientific research," say Utter. In addition, preparation of a new trail guide is under way. This guide interprets research that Arboretum experts have conducted and traces the vegetation and geologic history of the area. For example, by examining pollen core samples in the swamp region, researchers were able to chart the vegetation history of the area since glacial times, showing how the ancient spruce and fir forests of the area evolved to today's deciduous woods. The guide also details the change in bird population over the last forty years, one of the results of recent changes in vegetation. Such a guide, explains Utter, "gives people a feel both for research and for the natural systems in the area."

A popular place year round, the center is visited by an average of 9,000 people a year, mostly local residents from the New London/Waterford area. Of the center's changing focus, Utter says, "different people use us for different things. We're trying to get past the widespread image of a science center as just a place to call about a wounded bird and a place to buy birdseed in the winter." Utter gets calls from all sorts of people, ranging from individuals who are upset about wounded animals to those who merely want information. She remembers one particular phone call from a woman who was extremely distressed about a cricket whose nightly songs in a tree outside her house gave her many sleepless nights. Utter suggested that the woman either climb up the tree and get the cricket or wait until it disappeared with the first frost.

In any case, she says, "You can never tell who's going to be on the other end of the phone." Many of the calls are from people requesting bird, snake, bug or insect identification. However, Utter enjoys giving people information and says that the wide range of questions allows her to do a lot of research and learn quite a bit about different aspects of nature. ■



Jenny Mead photos

Should we trap?

The following is reprinted with permission of the National Wildlife Federation from a pamphlet, "Trapping and Conservation," by Vern W. Pond. A few minor alterations have been made by Wildlife Biologist Joseph Risigo to reflect the situation in Connecticut.

Trapping has recently come under fire from many well-meaning people, including some conservationists. Of particular concern has been the leg-hold trap, often called the steel-jawed trap in anti-trapping literature. As a result, wildlife enthusiasts sometimes find themselves at odds with each other. Trapping has become an emotional issue, and it is the intent of this article to examine the role of trapping and the trapper in conservation.

Personal decision

The National Wildlife Federation (NWF) feels that the question of whether or not to trap is a decision each individual must make for himself. It is vital to the conservation movement to unite all who are interested in protecting our natural resources regardless of whether they are consumptive users or nonconsumptive users. Birdwatchers, hunters, nature photographers, and trappers have common interests and should therefore work together to protect and enhance wildlife habitat--the real key to wildlife abundance. Should various special-interest groups separate and fight among themselves, little habitat will be protected and everyone will lose, especially wildlife.

Why people trap

Why is it that many people, old and young, are willing to brave harsh winter weather to work their traplines? Trapping means different things to different people. For some, it is a form of recreation, a chance to be outdoors and to observe nature firsthand. It is a challenging opportunity to test one's skills. For others, the extra income can be important, to the extent of financing an education or even buying necessities. For some landowners and farmers, trapping can mean the difference between making a profit or suffering a loss. This is because in addition to the incidental return on pelts, the landowner can often reduce his losses to depredating wildlife.

Modern wildlife management

NWF has always supported the practice of scientific wildlife management by state and federal agencies concerned with and responsible for the welfare of wildlife resources.

What is wildlife mangement?

It is a science which seeks to maintain optimum numbers and varieties of wildlife on a continuing basis, consistent with the best interests of man. Its first task is to provide and protect habitat--areas where animals can find food, water, and cover in which to live and raise their young. Without suitable habitat, there can be no wildlife.

Wildlife management demands the use of many techniques. It involves research on the various species of wildlife, including such aspects as habitat needs, population dynamics, ecological relationships to other species, and reactions to human activities. It involves the establishment of goals and the development of plans to achieve those goals. Finally, it involves wildlife population management. This may require complete protection when numbers of certain species are depleted, or it may involve the cropping, or harvesting, of species which are abundant or threatening with overpopulation. A properly managed wildlife resource is healthy, productive, and in balance with the surrounding environment.

Leonard Lee Rue III photos

The role of trapping in wildlife management

Thinning out populations of furbearers has for years been accomplished by trapping. This is because wildlife biologists and wildlife administrators recognize that regulated trapping is the most efficient and practical means of reducing surplus populations of many species. Trapping is an appropriate means of properly regulating their numbers, and permitting man to utilize the surplus.

NWF and other national conservation organizations recognize trapping as an effective tool in achieving the goals of wildlife management. It helps maintain healthy wildlife populations and protect the integrity of the ecosystem itself. Some furbearers such as muskrat, if left uncontrolled, can multiply to such numbers that they consume all available edible vegetation. This not only destroys the food base for the muskrat, but also damages the marsh. As a consequence, all organisms which depend upon a healthy aquatic ecosystem suffer.

Wildlife professionals know that regulated trapping is not a threat to the survival of wildlife. They recognize that habitat destruction and degradation is the real danger. The number of animals taken by trappers is controlled through restrictions on types and sizes of traps, lengths of seasons, bag limits, and other regulations.

As already mentioned, trapping is often important in reducing landowners' losses to depredating wildlife. An example of losses which can be controlled in this way are raccoons damaging corn fields. Similarly, muskrats will tunnel through dams and dikes, beavers will often cause severe flooding problems, and many predators will kill farm animals. When such problems occur, trappers are often called upon to help a farmer protect his property and livelihood.

Wildlife biologists must capture animals for examination, measurement, and other reasons. They also utilize traps for studies of population status. By studying the captured animals, biologists can determine the age structure and stability of wildlife populations. This allows wildlife managers to make better-informed decisions.

Disease control

Wildlife diseases are transmitted more rapidly

when animals are overcrowded. A sound harvesting program can reduce overcrowding, improving the health of the remaining wildlife populations and reducing occurrence of parasites and diseases such as distemper and sarcoptic mange. Biologists have shown that trapping can also reduce the occurrence of rabies, a disease which threatens human life. By informing biologists of animals which show signs of sickness, trappers serve an important role in early detection of disease outbreaks.

Must we interfere?

Some people, even some environmentalists, have trouble accepting the fact that without management, overpopulation would be a problem for many forms of wildlife.

Why, they ask, must we manage? Why can't we let nature take its course?

The answer is that man is a part of and has a tremendous capability of impacting nature, and has so disrupted our ecosystems that the "balance of nature" is badly impaired. If there were no wildlife management, some species, especially herbivores, would increase so sharply that the land would be overrun with hungry animals. As habitat continued to deteriorate, fewer and fewer animals could be supported; soon there would be large scale reductions of wildlife populations (dieoffs). Animals that didn't starve to death would be subject to a high incidence of disease and parasites. The wildlife habitat would be badly damaged and would require many years to recover. This "boom and bust" cycle would continue until man decided once again to step in and manage wildlife. This is not mere speculation, based only on theory. Those who have studied the history of wildlife in America know only too well that such cases have occurred and many are well-documented.

And so, the National Wildlife Federation supports wildlife management because it works. It helps stabilize wildlife populations and reduce disastrous highs and lows. Sound wildlife management allows man to wisely use a portion of the surplus while insuring a healthy breeding stock.

Is trapping humane?

The laws of nature dictate that only a limited number of each form of wildlife will survive the most critical time of year, which may be the cold winter months or the dry summer months, depending upon geographical location. The number that survive can be said to be the carrying capacity for any particular parcel of land. The only way to increase the carrying capacity for a given species is to actively manage the land--to improve the habitat, in other words. The number of animals exceeding the carrying capacity--the surplus--will die by the end of the critical period. What many people don't realize is that for some wildlife species, the surplus is as high as 80 percent of the annual peak population.

There are a number of mortality factors which, when combined, equal the surplus which must die every year. These factors include predation, disease, accidents, starvation, and dehydration. If the numbers taken by human predation are reduced, then more will die of other causes. So it is not a question of how many will die; it is a question of how they will die, a question of which mortality factors involve the least suffering or which operate in the shortest time--in other words, which are most humane.

Predators usually kill quickly, although they are more concerned with preventing their prey from escaping than they are with being humane about it. However, many animals, if not taken by human predation, will die from some of nature's less humane options: disease and starvation. Animals that die from these causes experience more prolonged suffering than most individuals would care to witness. Instead of the comparatively swift death of a trapped animal being dispatched by a trapper, these animals die a

slow death often taking weeks or months.

Therefore wildlife managers, concerned about the health and welfare of the living populations and the integrity of ecosystems, are often puzzled that some individuals oppose regulated trapping on humanitarian grounds. If trapping were eliminated, certain wildlife populations would exceed the ability of the habitat to sustain them, causing damage to the vegetation and forcing population reductions by starvation and disease.

Types of traps

Although there are many different types of traps, all can be separated into three broad categories:

(1) those which enclose the animal, such as cage traps;

(2) those which kill the animal, such as body-gripping traps;

(3) those which merely hold the animal, such as leg-hold traps and leg snares.

Enclosure traps, called either box traps or cage traps, are often useful in urban areas to catch a relatively few individual animals which are causing specific problems. They cannot be used extensively in the field because of their cost, bulk, and ineffectiveness in capturing large animals or others not easily lured into confined areas.

Traps which are designed to kill quickly and are permitted by Connecticut regulations are the smooth wire traps not having teeth or not having a spread of jaws greater than six inches. Conibear or similar smooth wire type traps not larger than ten inches square may be set for beaver in the beaver flowage. These body-gripping traps consist of two metal frames connected by a spring. An animal passing through the trap releases a trigger, causing the frames to crush the animal's neck and back. In this manner, it kills very quickly and efficiently. These traps are most effective when used for small animals such as muskrat and mink. The major drawback of killer traps is that nontarget animals which are unintentionally captured cannot be released.

The most versatile trap by far is the leg-hold trap. Used properly, it will hold the animal safely until the trapper returns to dispatch it. If a nontarget animal is accidentally captured, it can usually be released unharmed. This trap can also be used as a quick-killing device when set to hold the animal under water.

Today's leg-hold trap has no teeth, contrary to many people's belief. Steel-jawed traps having teeth are, and have been, outlawed in Connecticut for many years. Those who describe the leg-hold trap as the "steel-jawed" trap are attempting to play on emotions by making it seem inhumane. Selected photographs depicting use of outdated or oversized leg-hold traps have been used in the campaign to outlaw them. While cases of misuse do occur, such as use of improper trap size, improper location of trap, or irregular checking for capture, they are infrequent and are the result of poor trapping techniques on the part of a minority of trappers.

In Connecticut, "traps must be tended within a 24-hour period. Use of steel traps or smooth wire traps is permitted only in the burrow of a wild animal or below the surface of the water in a pond, lake, stream, spring hole or tidal water. No trap may be placed, set, or tended within ten feet of the water line of a muskrat house or beaver house, including bank burrows of beaver."

Many techniques are available, and an experienced trapper will capture only the type of animal he desires. Furthermore, the knowledgeable trapper knows how to capture the animals humanely. Considering the versatility of the leg-hold trap, there is simply no practical and total substitute for it. If that were not true, trappers would not be using it.

Trapper ethics

The careless trapper causes most of the suffering that people find objectionable. All of the traps described above can be used effectively and humanely by an ethical trapper, so the challenge is to encourage ethical use of traps, not outlaw them.

Progress toward this goal is being made in two ways: (1) research on development of better and even more humane traps; (2) trapper education programs, gaining popularity and support.

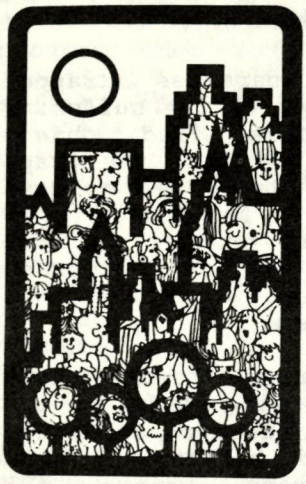
Many trappers' associations heavily emphasize ethics, and some states require trapping instruction before licensing first-time trappers. NWF has called for a stepped-up research program to develop more humane methods of harvesting furbearing animals. It believes trapping should be carried out by the most humane methods appropriate to the situation.

The goal of every trapper should be to be as humane as possible by choosing the most selective technique and using the proper size and type of trap. Ethical trappers respect the rights of the landowner, check their traps frequently, leave an adequate number of animals for the future, and vigorously support conservation officers in the prosecution of wildlife violators.

Trappers and the environment

Since trapping frequently is only part of a trapper's overall outdoor experience that may include fishing, camping, canoeing, and birdwatching, responsible trappers recognize the vital role of habitat in maintaining optimum numbers and varieties of wildlife. They frequently become ardent supporters of meas-

To page 22



For Your Information

By Martina Delaney,
Citizens' Participation Coordinator

Polls say people favor environment

In 1965, George Gallup asked one of the first questions about environmental issues in a public poll. His interviewers presented a list of ten national problems and asked which three the government should devote most of its attention to during the next year or so. "Reducing pollution of air and water" was chosen by 17 percent of the respondents in 1965, placing it ninth, just after "improving highway safety" and a few percentage points ahead of "beautifying America." The number of public polls on environmental issues gradually increased until the early 1970s, when they became a regular occurence. When Gallup repeated the question above immediately after the first Earth Day in 1970, the respondents choosing pollution tripled, and it came in in second place.

Despite the large number of questions that have been asked on environmental, resource, and energy matters, relatively few polls were repeated regularly, so that trend analysis was difficult. Nevertheless thanks to pollsters such as Harris, Gallup, Roper, the Opinion Research Corporation, and others there is now a large amount of data on public opinion about a wide variety of environmental issues, and there are some basic data on trends.

Poll taking has become more sophisticated over the years. Now, for example, tradeoff questions are more often asked. These questions require individuals to make choices between environmental protection and higher prices, higher taxes, lower economic growth, or higher unemployment. By and large, polls using such questions have indicated that people are willing to pay for environmental quality. A recent 1980 Resources for the Future (RFF) poll's findings confirm this.

This study of U.S. public opinion on a variety of environmental issues was commissioned by the Council on Environmental Quality and three other federal agencies -- the Department of Agriculture, the Department of Energy, and the Environmental Protection Agency. Their purpose in commissioning the poll was to learn about public opinion trends over the past decade, to obtain information about new environmental concerns, and to determine public responses to difficult choices between environmental protection and other values. The agencies point out that the RFF poll is one of the most extensive and probing surveys on environmental issues conducted to date, and greatly increases knowledge about public opinion on energy, regulation, and economic problems as they relate to environmental concerns. The following summarize results of two RFF findings regarding the environment, energy, and economic tradeoffs.

Table 1

ENERGY SOURCES WHICH ARE MOST AND LEAST PREFERRED AS NATIONAL PRIORITIES FOR THE YEAR 2000[1]

Q. 40. Here is a list of several ways to get energy. (HAND RESPONDENT CARD) Looking ahead to the year 2000, and this nation's energy needs, which two or three of these sources of energy do you think we should concentrate on the most? (READ WHILE RESPONDENT LOOKS AT CARD:)

This list includes coal; nuclear energy; energy conservation steps such as more and better home insulation and cars that get good mileage; water power from dams or water falls; solar energy including energy from the sun and the wind; oil and natural gas; and synfuels which are a new kind of fuel made by industrial plants which convert oil shale into oil or coal to a liquid or gas. Which two or three do you think we should concentrate on the most?

Q. 41. Now, looking at the card again, which one of these sources of energy would you like to see us spend the least effort to develop? (RECORD ABOVE)

Rank		40 Concentrate on most	41 Spend least effort	Most minus least
1.	Solar energy	61%	6%	+55
2.	Energy conservation	35	3	+32
3.	Coal	36	9	+27
4.	Water Power	31	10	+21
5.	Oil and natural gas	28	9	+19
6.	Synfuels	26	9	+16
7.	Nuclear energy	23	33	-10
	None	—	6	
	No opinion	2	15	

1. 1980 RFF survey, N=1,576

Energy

The RFF survey did five polls in 1979 and early 1980 with environmental-energy tradeoff questions which showed public opinion leaning toward energy development. Strong majorities favored energy in two of these polls while there was a much closer division in the other three. According to RFF most of the questions did not measure the belief which a number of people may share -- that energy development is not necessarily incompatible with environmental quality or whether environmentally risky energy sources should be pursued. As a way of testing public views on this subject in the 1980 survey RFF asked individuals to look ahead to the year 2000 and to select from seven energy sources the two or three that "we should concentrate on the most." They were also asked for the one that should receive "the least effort to develop." The results are shown in Table I, taken from the RFF survey.

As indicated, the most preferred energy source is also the most environmentally benign. Solar energy was chosen by two out of three people as one of two or three sources on which the nation should concentrate. RFF reports that this level of popularity is consistent with the results of other polls. Nuclear energy was chosen most often (by 33 percent) as the technology which should receive the least effort.

Economic tradeoffs

The RFF survey confirms the continuing reluctance of most people to weaken environmental control programs in the name of economy. This was also shown in recent polls which asked about types of government spending. Although 69 percent of the respondents in a January 1979 Harris poll favored "a major cutback in federal government spending," 57 percent in the same poll opposed "a major cutback in spending for environmental protection." A Gallup poll for "Newsweek" in February 1980 found that 87 percent of the respondents wanted to maintain or increase government spending for water pollution control programs. Roger Seasonwein Associates conducted an extensive poll for Union Carbide in fall 1979 with similar findings. It concluded:

> Most Americans think that it is the consumer who ultimately pays for most government regulations, and they see health, safety, and environmental regulations as having the greatest impact on consumer prices. Yet many apparently believe the price well worth paying since they say they want precisely these types of regulations made more rather than less strict.

Poll results are highly dependent upon the wording of questions, of course, and it is at this point that they are most vulnerable to misuse. Only by examining a wide range of questions, by using questions which employ tradeoffs, and by comparing answers to the same question over time to ascertain trends can a valid overall picture of public views on environmental matters be developed.

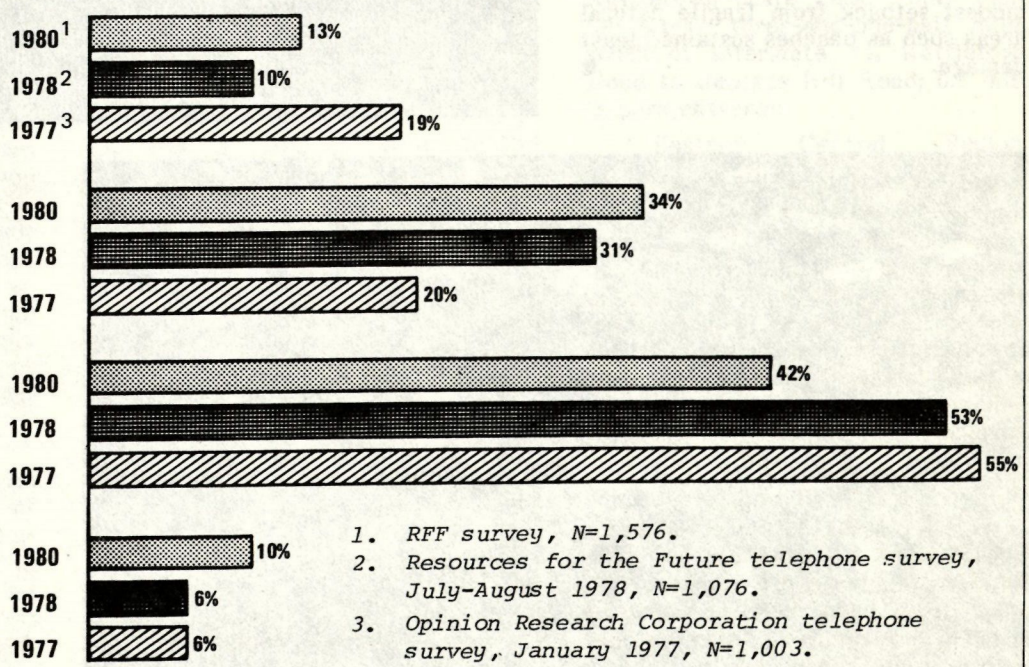
The Opinion Research Corporation gave the following advice in 1977 based on its poll on environmental issues:

> All told, if public opinion is any guide, it would seem that business continues to have little recourse, but to learn to cope with the fact that environmental protection no

To page 22

Table 2

Q. 34 I am going to read you three points of view regarding pollution control. Please tell me which one best represents your opinion.



1. *RFF survey, N=1,576.*
2. *Resources for the Future telephone survey, July-August 1978, N=1,076.*
3. *Opinion Research Corporation telephone survey, January 1977, N=1,003.*

coastal area management
71 capitol avenue hartford conn 06115

CAM NEWS

New Haven and Fairfield Counties declared disaster areas

The heavy rainstorm of October 25, 1980, caused extensive flooding in the coastal communities of New Haven and Fairfield Counties. Many residents of the coastal zone suffered heavy financial losses. Acting on a request from the Governor, CAM staff members worked with local municipal contacts to help determine whether or not the State could qualify for federal disaster funds. Latest figures estimated the damage at $2.9 million for Fairfield County and $1.5 million for New Haven County. As a result, the area was declared a federal disaster area and residents qualified for low interest loans: up to $50,000 for homes; $10,000 for losses to personal property; and $500,000 for business damage. These photos taken by CAM biologist Ron Rozsa show some of the homes and cottages which were damaged. Note that those homes with even a modest setback from fragile natural areas such as beaches sustained least damage. ■

Ron Rozsa photos

208 water quality management

Agricultural pollution studied in Little River watershed

The Connecticut 208 Program is working to control non-point sources of water pollution throughout the State. Non-point source pollution is any pollution which does not originate from a specific outlet, or "point." Some typical examples are erosion and sedimentation, contamination of ground water by failing septic systems, and landfill leachate.

However, the majority of non-point sources of pollution are the result of storm events. Rain washes gas, oil, and litter off city streets, dirt and debris from construction sites, and herbicides, pesticides and fertilizers off farmers' fields. On a national basis, agricultural activities are the largest contributor of non-point source pollutants to our waters. Such activities affect over half of America's river basins and are responsible for roughly two-thirds of the total amount of sediment deposited annually in streams and lakes.

As a result of this, the United States Environmental Protection Agency (EPA) has ranked agricultural non-point source pollution abatement as a national priority. It should be understood, though, that agricultural activities in New England, and Connecticut in particular, do not constitute a problem of the magnitude found in the rest of the country. That is because New England farms are typically small operations, and there are fewer of them. In Connecticut, for example, only about 15 percent of the land area is used for agriculture.

The Connecticut 208 Program has been involved in a study of agricultural non-point source pollution in the Little River watershed in Woodstock. The study is part of the EPA's national program and as such is closely monitored by EPA headquarters in Washington, D.C.

Monitoring sites have been selected in the watershed where sampling will collect data on bacteria levels, sediment loadings, and in-stream physical characteristics such as pH, water temperature, dissolved oxygen, dissolved solids, and conductance. In addition sampling sites have also been chosen in Roseland Lake, which is downstream of the agricultural sampling sites. Roseland Lake sampling will be done in conjuction with the agricultural study to determine if it qualifies for Clean Lakes Program funding for eut rophication control.

The Little River watershed was chosen specifically for this study for a number of reasons. In the first place, agricultural activities constitute a major portion of land use in the watershed. S econd, the Northeastern Connecticut Regional Planning Agency (NERPA) conducted an agricultural runoff special study in the watershed in 1978, as part of the initial 208 work plan. The United States Geological Survey (USGS) installed a gauging station in the watershed during this study, and total and dissolved nitrogen and phosphorus were also sampled daily at that site. Crest stage indicators will also be installed at four locations.

The background data collected during this early program have partially served as the basis for the current efforts. The original study pointed out that nutrients were entering the Muddy Brook, a tributary of the Little River. Since interest in controlling agricultural pollution in the watershed was apparent, the Soil Conservation Service and Agricultural Stabilization and Conservation Service began the process of developing and applying pollution control measures in the watershed which could be funded under the Agricultural Conservation Program. These include Best Management Practices (BMPs) designed to reduce erosion and sedimentation, and manure storage facilities which allow the farmer to control his handling and application of manure in a more efficient manner.

What EPA-Washington is interested in is the degree to which such practices lower the nutrient, bacterial, and sediment entry into the water body. The sampling will help determine if pollutant levels are affected, and water quality is improved, as individual farms install pollution abatement structures or begin to utilize BMPs. This sampling program is designed to run over a three-year period, the future life of the 208 Program.

Since similar studies are now in progress throughout the country, EPA will be able to evaluate the results in terms of developing a nationwide program to lessen agricultural non-point source pollution. Such a program will constitute a major step towards attainment of the swimmable/fishable water quality mandate of the Clean Water Act.

By Joseph M. Rinaldi,
208 Public Participation Coordinator,
P.O. Box 1088, Middletown, Ct. 06457
(203) 347-3700

Off-season camping

Five State Park and State Forest areas are open for off-season camping for fall and winter, October 1, 1980, through February 29, 1981. These areas were chosen with two objectives: to provide as wide a geographical coverage as possible and to offer proximity to other fall and winter activities such as hunting, snowmobiling, and skiing. They are:

Northwestern Connecticut: Housatonic Meadows State Park (25 sites), one mile north of Cornwall Bridge on Route 7.

Southwestern Connecticut: Kettletown State Park, Pump Field (30 sites), three-and-one-half miles south of Interstate 84, Kettletown Road to Georges Hill Road; 0.7 mile to park entrance.

Eastern Central Region; Cockaponset State Forest (12 sites), two-and-one-half miles west of Chester on Route 148; north on Cedar Lake Road two miles.

Eastern Region: Pachaug State Forest, Mount Misery Area (20 sites), off Route 49, north of Voluntown; and Mashamoquet Brook State Park (20 sites), Route 44, Pomfret.

During the off-season camping season, lots will be issued on a first-come, first-served basis. Camp stays are limited to three nights, with an absence of 24 hours required before returning. There is no charge. Dogs on leashes are permitted at these camping areas during the off-season period. ■

Trapping From page 17

ures to protect the environment. They speak out against the desecration of lands by irresponsible strip mining, the drainage of wetlands, and the commercial development of estuaries.

Trappers, protectionists, and habitat

NWF deplores the continuing controversy over hunting and trapping, because to the extent that it splinters and saps the strength of the conservation movement, it poses a threat to wildlife. If conservationists are preoccupied with quarreling over the ethical issues involved, wildlife's real enemy--environmental degradation and destruction--will continue to accelerate.

It seems appropriate to close with a quote by Dr. Randolph Bennett, a zoologist who wrote in 1938:

> ...all of us who are interested in wildlife at all, from the dyed in the wool game-hog to the most extreme protectionists, are seeking the same thing whether we know it or not. If we want more wildlife to enjoy without killing it, we can get it only by increasing the carrying capacity of the lands and waters. If we want a larger crop to harvest year after year, our method must be the same and the objective of the non-hunter will be attained as well. We all seek a larger breeding reserve. The only difference is that some of us wish to leave the entire surplus to be killed by natural factors; the others wish man to take a fair share of the surplus. ■

Noise From page 9

consumers select the least noisy from an array of products; meanwhile, manufacturers are being encouraged to voluntarily develop such noise labeling programs. Will this help? One producer of a quieter lawn mower found numbers of customers returning the mowers for service because of "lack of power" -- proof that we commonly equate loud noises with high power. The EPA is also certifying low-noise products for purchase by the federal government.

EPA is also broadening the scope of railroad noise emission standards, for trains themselves, trains in transit, and railroad yards. The federal DOT, through the Federal Railroad Administration, enforces this group of regulations.

Jurisdiction questions are complicated. Federal regulations, for instance, govern 10,000 or more pound trucks as they come off the assembly line, and identical state regulations in Connecticut govern the truck as it travels the highways. Neither, however, has jurisdiction over the ancillary equipment on vehicles, such as refrigeration units, when the truck stops. In the Town of East Windsor, the town building code solved this problem by requiring enclosures at truck terminals if trucks' auxiliary equipment is left operating. ■

Polls From page 19

longer is the exclusive domain of a handful of professional social critics and environmental activists, but the continuing concern of the public as a whole.

In 1978 Louis Harris said that although the public is willing to take many risks because of the energy shortage, it is also shaking a stern finger in the face of those responsible and is saying: "But don't you dare relax your all-out efforts to make certain that environmental hazards are kept to an absolute minimum."

The results of the RFF survey in 1980 would seem to support these generalizations. The survey states although the state of the environment is no longer viewed as a crisis issue, strong support for environmental protection continues. It finds no sign of the backlash which had been predicted once the costs of significant environmental protection became known. The overall impression given by the RFF Survey and supported by other polls at the end of the 1970s is that far from being a fad, the enthusiasm for environmental improvement which arose in the early 1970s has become a continuing concern -- a concern which shows every sign of remaining for the foreseeable future.

Resources for the Future, a non-profit research organization in Washington, D.C., conducted its national public opinion survey (the RFF Survey) in 1980 for the Council on Environmental Quality. The study was designed and the data analyzed and interpreted by Robert Cameron Mitchell, a sociologist and senior fellow at Resources for the Future. The sample design, field work, and initial data preparation were performed by Roper and Contril, a joint venture of the Roper Organization and Contril Research, Inc.

Copies of Public Opinion on Environmental Issues: Results of a National Public Opinion Survey can be had by writing the Council on Environmental Quality, 722 Jackson Place N.W., Washington, DC 20006. ■

Waste Management

March 5 the Natural Resources Council will present a day-long conference on "Waste Management and Public Policy" at the Ramada Inn in East Hartford. Morning sessions will be devoted to hazardous waste; afternoon sessions to solid waste disposal. Conference will include a review of the State's Solid Waste Management Plan, the Interim Report of the Legislature's Solid Waste Task Force, and proposed legislation and regulations. For further information, contact: Dr. Barry Wulff, Eastern Connecticut State College, Willimantic, CT 06226 (456-2231).

Events

The Connecticut Audubon Center, 2325 Burr Street in Fairfield will offer:
January 23, 8 p.m.: slide lecture, "Landscaping for Energy Conservation";
January 30, 8 p.m.: slide lecture, "Wind Power";
February 7, all day: New Alchemy Institute Field Trip (Cape Cod);
February 13, 8 p.m.: slide lecture, "Introduction to Passive Solar Heating and Cooling"
For information and fees, and to pre-register, call 259-6305.

Public Hearings

January 20, 1981; 10 a.m.
Rm. G36-A, State Office Bldg., Hartford
To take public comment on the application of Uniroyal, Inc., Chemical Division, Naugatuck, for a variance from certain requirements of the Regulations of Connecticut State Agencies concerning the abatement of air pollution (specifically regarding fuel which contains sulfur in excess of one-half of one percent by weight). Subsequent sessions will be announced at the conclusion of the first session.

January 20, 1981; 2 p.m.
Rm. 221, State Office Bldg., Hartford
To consider the application of the T.C. Construction Corporation to discharge 23,100 gallons per day of domestic sanitary sewage to the sanitary sewer system in the Town of Windsor Locks.

January 21, 1981; 2 p.m.
Rm. 221, State Office Bldg., Hartford
To consider the application of Kenneth Devino to maintain and regrade fill materials in inland wetlands and riverward of established stream channel encroachment lines to provide additional parking for property adjacent to Steel Brook and Mattoon Road west of the ConRail tracks and east of Falls Avenue in Waterbury.

January 21, 1981; 10 a.m.
Rm. 221, State Office Bldg., Hartford
To consider the application of M.D. Fox Associates to discharge 13,350 gallons per day of domestic sewage from apartments in the former Fox School in Hartford to the MDC sewerage system.

January 22, 1981; 10 a.m.
Rm. 221, State Office Bldg., Hartford
To consider application of Ralph Sebastian to maintain fill materials in approximately 1.25 acres of inland wetland and fill on additional 0.3 acre for a retail nursery building and parking area on Jewett City Road north of Rt. 165 in Preston.

January 22, 1981; 7:30 p.m.
Court Room, Police Headquarters, Longbrook Ave., Stratford
On proposed delineation of the bounds of tidal wetlands, in towns of Milford and Stratford, in the Housatonic Industrial area between the Penn Central Railroad bridge in Devon and Long Island Sound.

January 23, 1981; 10 a.m.
To consider application of Barry Klein to construct storm drainage systems and detention basins and culvert a water course in association with development of a 27-lot residential subdivision on Chapin Rd., west of Walker Brook Rd., and east of Ridge Rd., in New Milford.

Permits Issued

Water Compliance

7/10/80: Bridgeport Brass Company, Bridgeport
To discharge to the Pequonnock River an average daily flow of 8,000 gallons per day of boiler blowdown, an average daily flow of 750,000 gallons per day of cooling waters, and an average daily flow of 840,000 gallons per day of treated metal finishing wastewaters . Conditions.

7/10/80: The Mattatuck Manufacturing Company, Waterbury
To discharge to the Mad River an average daily flow of 15,360 gallons per day of wastewaters. Conditions.

7/10/80: Anaconda American Brass, Waterbury
To discharge to the Naugatuck River an average daily flow of 2,684,000 gallons per day of treated metal finishing wastewaters and cooling wastewaters. Conditions.

7/10/80: The Wiremold Company, West Hartford
To discharge to Piper Brook via a storm drain an average daily flow of 9,360 gallons per day of paper wetting, cooling water, and wastewaters. Conditions.

7/10/80: Amphenol North America, Bunker Ramo Corporation, Danbury
To discharge to Kohanza Brook an average daily flow of 90,000 gallons per day of wastewater and an average daily flow of 4,000 gallons per day of cooling water. Conditions.

7/17/80: Pratt & Whitney Aircraft Group, Division of United Technologies, East Hartford
To discharge to the Quinnipiac River wastewaters from the West Queen Street Plant and to discharge to the Quinnipiac River variable flows of wastewater and wastewaters from the Newell Street Plant. Conditions.

7/17/80: Pratt & Whitney Aircraft Group, Manufacturing Division, East Hartford
To discharge to Willow Brook an average daily flow of 4,032,000 gallons per day of wastewaters including an average daily flow of 590,000 gallons per day of chrome pre-treatment facility wastewaters and an average daily flow of 556,320 gallons per day of cyanide pre-treatment facility wastewaters and an average daily flow of 252,000 gallons per day of dilute oily wastewater from pre-treatment facility and an average daily flow to be determined by engineering report of concentrated wastewater treatment facility non-oil wastewater and soluble oil and variable flows of wastewater to Pewterpot Brook and also to discharge from the Willgoos Laboratory to the Connecticut River a maximum daily flow of 345,600,000 gallons per day of wastewaters plus variable flows of wastewaters. Conditions

7/17/80: Yardney Electric Corporation, Pawcatuck
To discharge to the Pawcatuck River cooling water, negative electrode area, bead etch, positive electrode area, electropolishing area, silver bullion area, nickel technology area, and amalgamation process waters in an average daily flow of 137,000 gallons per day. Conditions.

Trailside Botanizing

by G. Winston Carter

Common Juniper
Juniperus communis

Common or dwarf juniper is one plant that can be recognized readily at any time of year. Its growth pattern and prickly needles, which grow in whorls of three, are quite distinctive. There is a spreading shrubbery look to dwarf juniper, which in some places grows as dense, prickly thickets, while on some occasions it may grow to tree size.

A typical spot for this plant to grow is in rocky or gravelly soils, such as stony pastures or hillsides, frequently where the soil has been disturbed. This species of juniper has a very wide range throughout the Northern Hemisphere.

Junipers belong to the cypress family and make up nearly half of its one-hundred and forty different members. All of them are native to north temperate regions. They characteristically produce their seeds within a blue berry-like structure which is really a cone with a fleshy coating.

Juniper has many uses. It provides good cover for small types of wildlife and game birds, and it serves as an important soil anchor on steep slopes. The cedar waxwing consumes a great many of the plant's berry-like cones. The ruffed grouse, pheasant, and white-tailed deer also use parts of this plant as food.

An oil that is obtained from the wood and leaves is used in making perfume while, in India, the fragrant foliage is burned as incense. Both in America and the Old World the berries of the common juniper are picked by hand and are used because they contain an aromatic oil which is employed for flavoring gin.

DEP Citizens' Bulletin
State of Connecticut
Department of Environmental Protection
State Office Building
Hartford, Connecticut 06115

SECOND CLASS POSTAGE PAID
AT HARTFORD, CONNECTICUT